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# In Search of the Key to a Well-Used Research Information System: Use Design Challenges for a Research Library

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**Abstract**

In this presentation we describe the development of a Current Research Information System (CRIS). The service is named [research.chalmers.se](http://research.chalmers.se) and is developed by a cross-functional team at the Chalmers University of Technology Library. The team has utilized different user experience (UX) methods to meet user needs and support user behavior. Due to the fact that the data within the CRIS system is maintained and

## About research.chalmers.se

Research.chalmers.se contains research information from Chalmers University of Technology, Sweden. It includes information on funders and collaborations. Research.chalmers.se is administrated and developed by Chalmers library.

The grant funded projects are imported from the contract database at Chalmers and data is added from several large funders, the Chalmers web and Chalmers Publication Library. Staff at the library ensure a basic quality level and continuously add new projects. The grant funded projects are covered from year 2012 onwards.



updated by its users, i.e., researchers, this has been a crucial approach. One challenge remains though - how to design the use of the system after the launch. Without constant updated data the system would likely become less and less relevant to its intended users. This is an urgent design challenge.

### Author Keywords

User Experience methods; Agile software development; Research libraries.

### ACM Classification Keywords

Human computer interaction (HCI)  
Digital libraries and archives  
(The 2012 ACM Computing Classification System)

### Introduction

There is an increasing awareness among researchers, policy makers and research funders of the need to store, structure and disseminate different kinds of research outputs [1]. Systems that manage this are called Current Research Information Systems (CRIS). Several commercial CRIS systems are available but some universities, like Chalmers University of Technology, has chosen to build their own solution [2].

In 2012, the former president at Chalmers University of Technology, gave the library the mandate to develop a research project database and research.chalmers.se was born. Right now a new publication database is being developed in connection with the new system.

CRIS are comprehensive systems, depending on updated data to be useful. Most universities with a CRIS count on the researchers to keep the systems updated to some extent. It's crucial to find incentives to

keep the data updated in order to maintain a service with value.

### UX design methods used for research.chalmers.se

We used some different UX design methods during the development process. We wanted to explore how we could design the new system according to user values.

- Interviews combined with observations. We involved sketches, concepts and ideas at an early stage, to be able to narrow down to a hypothesis what to build.
- Effect map / impact map [3]. The interviews gave us data that we could use to create an effect map or impact map at the initiation phase. What was the business goal (why)? Different target groups / personas, what was their incentives, needs and usage goals (for whom)? What should we do to fulfill those needs (how)?
- User tests throughout the whole development process. We continually tested sketches of concepts, live prototyping, interaction design and different workflows on our users in order to iteratively adapt and change the design according to our findings.
- User journey map for PhD's. It described the journey for the users to get an ISBN, to print, to register the thesis in the institutional repository, to announce their thesis defense and to accept e-publishing.

### New competences in research libraries

Research libraries offers a lot of digital services to researchers and students. Most libraries has traditionally high data and IT skills in-house, and quite a few have some kind of system development competence. In addition to that, interest and

knowledge in user centered design has started to grow. Focus has largely been on user testing, probably because most libraries have procured library- and information retrieval systems and have developed the skills needed to adapt them.

Lately, UX design and service design have come to light. Libraries have started to show interest in how we can provide services with user value and good user experiences both in the digital and physical library. The competence is still unequally distributed in the library sector. UX design is not yet on the agenda in the library science education. People with UX design competence has typically gained it from participating in conferences, workshops and informal networks.

The rapidly growing interest of UX design together with high IT-competence at the research libraries, and being so close to the users, have made them an interesting platform for trying out service with good digital and physical user experience.

### **Experiences from the case research.chalmers.se**

The in house development is done by a cross-functional team including system developers, librarians with domain knowledge, and UX designers. Having domain knowledge in the team makes the user research shorter. As we had initial understanding of the task, we could quickly come up with some concepts and ideas and try them with our users. This approach, and being so close to the users, made it easy to perform quick iterations; "build - try on users - learn-and-change".

The above mentioned UX design methods proved to be successful, especially effect maps. It encouraged

discussions when we returned to the users with the map - did we get you right? As we thought, visualizations facilitates communication. User testing is maybe the most natural method for research libraries and gave us useful feedback on the design.

We have gained competences in investigating user needs and good user experience when using the system. One indication that we have succeeded is the quote "This is the first administrative system I've tried that's actually fun to use".

### **Further challenges**

But there is still a lack of ways to anticipate if the system actually will be used on a daily basis after launch, or if it will end up in a "circle of despair", to quote Dr. Rachel Curwen, University of York [4]. After implementing a CRIS at the university one noticed a decrease in the usage, which lead to a decrease in the updating of information. Poorly updated data lead to even less usage, and then you are finding yourself in a circle of despair. That's why it's crucial to catch the incentives to keep the service updated.

Methods that could help us to predict whether a system will be used or not is hopefully something we can learn from the private sector (or start up community) which, in contrast to the academy, depends more on business success.

In return, we hope to inspire other research libraries as well as other sectors with our experiences from and competence in UX design in an academic environment.

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